

DEPARTMENT OF FISH AND GAME

601 Locust Street
Redding, CA 96001
(530) 225-2300



January 3, 2003

Mr. Dave Sabo, Area Manager
Klamath Basin Area Office
U.S. Bureau of Reclamation
6600 Washburn Way
Klamath Falls, OR 97603

Dear Mr. Sabo:

**Transmittal of Report "September 2002 Klamath River Fish Kill:
Preliminary Analysis of Contributing Factors"
and California Department of Fish and Game (DFG) Recommendations**

This letter transmits the DFG subject report to the U.S. Bureau of Reclamation (USBR) and provides important recommendations for management of the Klamath Project (Project) with respect to fishery resources. This report provides a preliminary analysis of factors leading to the September 2002 fish kill and compares 2002 and other low-flow years in the Klamath River when major fish kills were not observed. Factors examined by the DFG include fall Chinook salmon run size and timing, ambient atmospheric conditions, and in-river environmental conditions.

During late September of 2002, a minimum of 33,000 adult salmon, steelhead trout, and other fish species were killed in the Lower Klamath River. This kill is considered highly significant because approximately 25 percent of the projected 2002 total in-river run of Klamath/Trinity River fall Chinook salmon were killed prior to spawning. Of the salmonids lost in the lower half (mouth of the Klamath to Blue Creek) of the fish kill area, DFG estimates that 95.2 percent were fall Chinook salmon, 0.5 percent were coho salmon and 4.3 percent were steelhead trout. These DFG estimates are similar to those developed by U.S. Fish and Wildlife Service (USFWS) for the entire kill area (mouth of the Klamath to Coon Creek Falls). The preliminary estimates by the USFWS shows that out of the 33,000 anadromous fish killed, 96 percent were Chinook salmon, 1.5 percent were coho salmon and 2.0 percent were steelhead trout. The DFG estimates that 68 percent of the Chinook salmon killed were naturally spawned fish and 53 percent of the steelhead killed were naturally spawned fish.

The pathological cause of death for adult Chinook salmon, coho salmon, and steelhead during September 2002 was disease from the ciliated protozoan *Ichthyophthirius multifiliis* (ICH) and the bacterial pathogen *Flavobacter columnare* (columnaris). Both pathogens occur naturally and are common worldwide and are found in the Klamath River and other aquatic systems.

The DFG concludes that low flows restricted fish passage and increased fish density thereby causing the 2002 fish kill on the Lower Klamath River. Furthermore, of the conditions that can cause or exacerbate a fish kill, flow is the only factor that can be controlled to any degree. Flow is regulated by upstream reservoirs operated by the USBR on both the Klamath and Trinity rivers. There is a substantial risk for future fish kills on the Klamath River considering that pathogens are always present, temperatures are normally at levels that can cause disease and, under the 2002 biological opinion flow prescription, a moderate-sized run of salmon and steelhead can generate high enough densities in the Lower Klamath River to result in a major fish kill.

The DFG recommends:

1. An investigation is needed to determine flows necessary to allow unimpaired upstream passage of adult salmon and steelhead in the Klamath River at key locations such as Pecwan and Ah Pah riffles, Coon Creek Falls, and Ishi Pishi Falls on the Klamath River, and Grays Falls on the Trinity River. Such an investigation should also address the subject of delayed passage for adult fish that may occur during low flows;
2. The USBR and National Marine Fisheries Service (NMFS) should reinitiate an Endangered Species Act consultation for coho salmon on the operations of the Klamath Project. In reinitiating consultation, USBR and NMFS must also address the flows necessary for "Essential Fish Habitat" for Chinook salmon and steelhead in the Klamath and Trinity rivers under the Magnuson-Stevens Fishery Conservation and Management Act as amended in 1996 by the Sustainable Fisheries Act (Public Law 104-267);
3. The USBR should immediately finalize the Hardy Phase II Flow Study and implement its flow recommendations. If USBR does not choose to fund the finalization of this report, an alternative source of funding should be identified by other State and Federal agencies to complete this important document;
4. The USBR should expedite the completion of the "Supplemental Environmental Impact Statement/Report for the Trinity River Main Stem Fisheries" Restoration" and implement the "Record of Decision;" and

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5. The USBR should model the Klamath River operations after the USBR's Central Valley Project on the Sacramento River in which the amount of agricultural water deliveries are based on water-year type and balanced with the needs of fishery and riparian resources. Fish and wildlife resource protection, restoration, mitigation, and enhancement should be made a part of the Klamath Project purpose. Under the Reclamation Projects Authorization and Adjustment Act of 1992 (Public Law 102-575), the Central Valley Project Improvement Act made fish and wildlife protection, restoration and mitigation a project purpose having equal priority with irrigation and domestic uses and fish and wildlife enhancement a project purpose equal to power generation.

If you have any questions regarding our report and recommendations, please contact Habitat Conservation Program Manager Mark Stopher. He can be reached at the letterhead address or by telephone at (530) 225-2275.

Sincerely,

A handwritten signature in black ink that reads "Donald Koch". The signature is written in a cursive, flowing style.

DONALD B. KOCH
Regional Manager

cc: See page four

Mr. David Driscoll
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cc: Ms. Irma Lagomarsino, Supervisor
National Marine Fisheries Service
1655 Heindon Road
Arcata, CA 95521

Mr. Randy Brown, Acting Project Leader
Arcata Fish and Wildlife Office
U.S. Fish and Wildlife Service
1655 Heindon Road
Arcata, CA 95521

Dr. Thomas B. Hardy, Director
Institute for Natural Systems Engineering
Utah State University
Logan, UT 84322-4110

Mr. Roger Smith
Oregon Department of Fish and Wildlife
1850 Miller Island Road West
Klamath Falls, OR 97603

Mr. Dwight Russell, Chief
Northern District
Department of Water Resources
2440 Main Street
Red Bluff, CA 96080-2398

Mr. Phil Detrich
Yreka Fish and Wildlife Office
U.S. Fish and Wildlife Service
1829 South Oregon Street
Yreka, CA 96097

Mr. Curt Mullis, Acting Project Leader
Klamath Ecosystem Restoration Office
U.S. Fish and Wildlife Service
6610 Washburn Way
Klamath Falls, OR 97603

Ms. Susan Masten, Chairperson
Yurok Tribe
1034 Sixth Street
Eureka, CA 95501

Mr. Lyle Marshall, Chairperson
Hoopa Valley Tribe
Post Office Box 1348
Hoopa, CA 95546

Mr. Alvis Johnson, Chairperson
Karuk Tribe
Post Office Box 1016
Happy Camp, CA 96039

Mr. Allen Foreman, Chairperson
Klamath Tribes
Post Office Box 436
Chiloquin, OR 97624

The Honorable Doug LaMalfa
Assembly Member, Second District
100 East Cypress Avenue, Suite 100
Redding, CA 96002

Mr. Jim Canaday
State Water Resources Control Board
Post Office Box 2000
Sacramento, CA 95812-2000

Mr. William Bennett
Special Manager for Klamath
Watershed Issues
Department of Water Resources
3251 S Street
Sacramento, CA 95816

Mr. Peter W. Otis
North Coast Regional Water Quality
Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Mr. Robert C. Hight, Director
Department of Fish and Game
1416 Ninth Street
Sacramento, CA 95814

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cc: Mr. Michael R. Valentine, Chief Counsel
Department of Fish and Game
1416 Ninth Street
Sacramento, CA 95814

Mr. Robert Treanor, Executive Director
California Fish and Game Commission
1416 Ninth Street
Sacramento, CA 95814

The Honorable LaVada Erickson
Chairperson
Siskiyou County Board of Supervisors
Post Office Box 1179
Mt. Shasta, CA 96067-1179

The Honorable Sam Aanestad
Senator, Fourth District
State Capitol
Room 5061
Sacramento, CA 95814

The Honorable Bonnie Neely
Chairperson
Humboldt County Board of Supervisors
825 Fifth Street
Eureka, CA 95501

The Honorable Chuck Blackburn
Chairperson
Del Norte County Board of
Supervisors
583 G Street, Suite 1
Crescent City, CA 95531

The Honorable Chris Erickson
Chairperson
Trinity County Board of Supervisors
Post Office Drawer 1258
Weaverville, CA 96093-1258